

CoC BMP Manual
Meeting 2 Minutes
January 16, 2013, 2pm-4pm
7th Floor Conference Room, 1136 Washington St.

Thank you to those who attended the January 16th meeting and contributed to the second monthly meeting to develop the City's BMP Design Manual. We wanted to provide you with an overview/minutes of the discussed Unified Sizing Criteria. Also, we have provided a pdf copy of the presentation, and plan to continue providing the presentations for the following monthly meetings.

To summarize, the Unified Sizing Criteria methodology is an approach to employ better site design practices for stormwater management that not only control water quantity, but treat water quality. This methodology will facilitate the use of more green infrastructures, conserve existing natural areas, and reduce the amount of impervious surfaces for a site. As a result, this will produce the opportunity to obtain credits and cut costs for site development.

For the meeting, Dave Briglio explained the Unified Sizing Criteria's four sizing criteria of water quality, channel protection, overbank flood protection and extreme flood protection. Each of the unified sizing criteria are intended to be used in conjunction with the others to address overall stormwater impacts from a development site, for the entire range of critical hydrologic events. For example, the extreme flood protection volume requirement also contains the channel protection volume and the water quality treatment volume.

1. **Water Quality:** Capture and treat runoff from the 85th percentile storm, which is about 1.2 inches of rain. These rain events produce the most polluted flows and need to be detained for 24 hours. This is similar to 72-300's first flush requirement to treat the first inch of runoff from the disturbed portion of the site (1/2-inch for wet ponds). However, this water quality volume is directly related to the amount of impervious cover at a site, and uses a runoff factor (Rv) similar to the Simple Method which is approved by SCDHEC and used in water quality models such as IDEAL. The more pervious areas the site contains, the smaller the water quality volume the site must detain. Also, for parts of the site that use infiltration, the volume will be related directly to the runoff from the impervious areas only.

Imperviousness and area of disturbance are the parameters that can be reduced with better site design practices, such as conserving upland natural areas and implementing more structural/nonstructural BMPs on site. This will in turn present the site with more crediting opportunities.

2. **Channel Protection Volume:** Provide extended detention of the 1-year storm event released over a period of 24 hours to reduce bank-full flows and protect downstream channels from erosive velocities and unstable conditions.

- Can calculate using the commonly used SCS TR-55 method, using parameters that the designer will have already determined (CN, area, Time of Concentration, and runoff volume).
 - This criteria exceeds the requirements of 72-300.
3. **Overbank Flood Protection:** Provide peak discharge control of the 25-year storm event, which can be applied to a variety storm events (e.g., 2-year and 10-year), such that the post-development peak rate **does not**:
1. Exceed the predevelopment rate and increase overbank flooding (i.e. use traditional detention)
 2. Lead to increased adverse impacts due to increases in peak flow rates. We want to be able to safely pass the flows through the site and receiving (see next point) stormwater system
- Downstream areas must also be checked to ensure there is no new (magnitude or frequency) damage to other receiving systems/private property due to a peak flow increase above pre-development conditions. The area to be assessed starts at the site outfall and ends at the point where the site area is 10% of the total drainage to that point, with all critical junctions being assessed for potential harm.
4. **Extreme Flood Protection:** This follows the same method as the Overbank Flood Protection step, but simply using the 100-yr rainfall event.

Concerns expressed for flood protection parameters:

- Clarification on detaining 100 yr vs. the current requirement to safely pass this event:
 - The purpose is not to force the developer to model the rest of the downstream system at high costs, but to quickly and responsibly identify and avoid potential damages that the developer and engineer would be liable for (at an even higher cost).
- Concerns about assessing the downstream impacts:
 - A general discussion on acceptable methods to gather field data without a formal survey crew was discussed. This needs more discussion in the future to make sure that the goals of making responsible decisions, without excessive costs (or professional liability), are met.
- No rise vs. No impact:
 - In some cases a No Rise is needed – such as for FEMA-regulated waterways. To clarify, the downstream assessment is intended to identify a “No Impact” condition, where no new damages to receiving areas are created by changes in peak flow rates from the site.
- Closed systems vs. Open system surveying:
 - It was recognized that closed receiving systems can be more costly (and risky) to assess for the downstream assessment method. Therefore, more discussion is needed on how the City could identify reasonable data collection requirements and options. Doing so is intended to avoid higher costs on the developer, without creating new impacts to receiving properties.

- It was also noted that most complex urban systems in the City may not have large areas of undeveloped land left to design, and the concern identified may not occur.
- Lastly, it was noted that other similar locations in the region (Atlanta) have learned to employ this methodology, and that many of these concerns can be explained and resolved better via training

Dave also described the approaches for meeting the criteria through the use of site design practices and structural stormwater controls. Controls that were discussed in the meeting were categorized as General Application Structural Controls, Limited Application Structural Controls, and Detention Structural Controls. All of these controls can be used on sites, however some are preferred more than others mainly due to their installation and maintenance requirements.

The City has decided to adopt design tools for the following 6 BMPs for their Manual. Volume sizing worksheets and CAD details will be created for:

1. Wet and Dry Ponds
2. Bioretention
3. Grass filter strips
4. Infiltration basin
5. Dry Swales
6. Porous surfaces

Again thank you for your participation. The next monthly meeting will be held February 20th to discuss Better Site Planning/Design and Volume Reduction Credits. The meeting will be held in the same location (7th floor conference room) from 2-4pm.